

In re Patent Application of:  
**VAIL ET AL.**  
Serial No. 09/991,559  
Filing Date: **NOVEMBER 9, 2001**

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In the Claims:

1. (Currently amended) A temperature sensor comprising:
  - a capacitor;
  - a circuit element coupled in series with said capacitor and having a resistance that varies with temperature; and
  - a plurality of calibration resistors coupled to said capacitor and having different resistance values; and
  - a controller for
    - sequentially charging said capacitor through said circuit element and each of said calibration resistors, measuring respective charging times required to charge said capacitor to ~~the~~ a predetermined threshold through said circuit element and said calibration resistors, and
    - determining the temperature based upon the charging times.
2. (Original) The temperature sensor of Claim 1 wherein said circuit element comprises a thermistor.
3. (Previously cancelled).
4. (Previously amended) The temperature sensor of Claim 1 wherein said plurality of calibration resistors comprises a high calibration resistor and a low calibration resistor, said low calibration resistor having a lower resistance value than said high calibration resistor.

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5. (Original) The temperature sensor of Claim 1 wherein said controller comprises a counter for measuring the charging time.

6. (Original) The temperature sensor of Claim 1 wherein said controller comprises a driver coupled to said circuit element for charging said capacitor.

7. (Original) The temperature sensor of Claim 6 wherein said controller further comprises a control logic circuit for controlling said driver.

8. (Original) The temperature sensor of Claim 1 wherein said controller comprises a Schmitt hysteresis device coupled to said capacitor for determining when said capacitor has been charged to the predetermined threshold.

9. (Original) The temperature sensor of Claim 1 wherein said controller is implemented in an ASIC.

Claims 10-18 (Previously cancelled).

19. (Previously amended) A temperature sensor comprising:

- a capacitor;
- a thermistor coupled in series with said capacitor;
- a high calibration resistor coupled to said capacitor;
- a low calibration resistor coupled to said capacitor

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and having a lower resistance value than said high calibration resistor; and

a controller for sequentially charging said capacitor through said thermistor and each of said high and low calibration resistors, measuring respective charging times required to charge said capacitor to a predetermined threshold through said thermistor and each of said high and low calibration resistors, and determining a temperature based upon the charging times.

Claim 20 (Previously cancelled).

21. (Original) The temperature sensor of Claim 19 wherein said controller comprises a counter for measuring the charging times.

22. (Original) The temperature sensor of Claim 19 wherein said controller comprises at least one driver coupled to said thermistor and said at least one resistor for charging said capacitor.

23. (Original) The temperature sensor of Claim 22 wherein said controller further comprises a control logic circuit for controlling said at least one driver.

24. (Original) The temperature sensor of Claim 19 wherein said controller comprises a Schmitt hysteresis device coupled to said capacitor for determining when said capacitor has been charged to the predetermined threshold.

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25. (Original) The temperature sensor of Claim 19 wherein said controller is implemented in an ASIC.

Claims 26-32 (Previously cancelled).

33. (Previously amended) A method for sensing temperature using a capacitor, a circuit element having a resistance that varies with temperature, and a plurality of calibration resistors having different resistance values, the method comprising:

    sequentially charging the capacitor through the circuit element and each of the calibration resistors;

    measuring a respective charging time required to charge the capacitor to a predetermined threshold through the capacitor and each of the calibration resistors; and

    determining the temperature based upon the charging times.

34. (Original) The method of Claim 33 wherein the circuit element comprises a thermistor.

Claims 35 and 36 (Previously cancelled).

37. (Original) The method of Claim 33 wherein measuring the charging time comprises measuring the charging time using a counter.

38. (Original) The method of Claim 33 wherein charging the capacitor comprises coupling a driver to the circuit element

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and charging the capacitor using the driver.

Claims 39-44 (Previously cancelled).

45. (Previously added) The temperature sensor of Claim 1 wherein said controller cooperates with said plurality of calibration resistors to determine a capacitance variation of said capacitor, and wherein said controller determines the temperature based upon the charging times and the capacitance variation.

46. (Previously added) The temperature sensor of Claim 1 wherein said controller cooperates with said high and low calibration resistors to determine a capacitance variation of said capacitor, and wherein said controller determines the temperature based upon the charging times and the capacitance variation.

47. (Previously added) The method of Claim 33 further comprising determining a capacitance variation for the capacitor based using the plurality of calibration resistors; and wherein determining comprises determining the temperature based upon the charging times and the capacitance variation.